

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/GB2004/005268

International filing date (day/month/year)

16.12.2004

Priority date (day/month/year)

30.12.2003

International Patent Classification (IPC) or both national classification and IPC

H01L51/20, H01L51/30, H01L27/148

Applicant

THE UNIVERSITY OF LIVERPOOL

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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10/585160

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/GB2004/005268

AP20Pcs:1PCT/PTO 28 JUN 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/005268

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-20,22
	No: Claims	1,21
Inventive step (IS)	Yes: Claims	5,6,8-13,18
	No: Claims	1-4,7,14-17,19-22
Industrial applicability (IA)	Yes: Claims	1-22
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/005268

Re Item V.

- 1 Reference is made to the following documents:

D1 : WO 99/39394 A (UNIAX CORPORATION) 5 August 1999 (1999-08-05)

D2 : US 5 804 836 A (HEEGER ET AL) 8 September 1998 (1998-09-08)

2 INDEPENDENT CLAIM 1

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.
Document D1 discloses (the references in parentheses applying to this document): a charge coupled device (page 21, line 2) comprising a semiconductor body, a set of storage electrodes separated from the semiconductor body by a dielectric and a back electrode (page 21, lines 1-15; page. 6, line 1-page. 9, line 2; fig.1-4), the semiconductor body comprises a polymer or oligomer material and the back electrode forms a Schottky junction with the semiconductor body (see page 12, line 1-page. 15, line 17; fig. 1-2b) so that when in use the storage electrodes are charged such as so attract the majority charge carriers, they create storage sites in the semiconductor body which can take either of a first state, in which there is an accumulation of majority charge carriers at the site, and a second state, in which such an accumulation is not present at the site (see page 21, lines 1-15: the same subject matter is also known from D2, (see e.g. D2, col. 6, line 51-col. 11, line 6; fig. 1-4,13,14) and it is standard in all CCD devices).

Therefore D1 discloses all the features of claim 1 which consequently is not novel in the sense of Art. 33(2) PCT.

3 INDEPENDENT CLAIM 20

- 3.1 The subject-matter of independent claim 20 discloses a method to manufacture the device of claim 1 in which all the method steps are either known from D1 or standard

practice in the art (e.g. the formation of an oxide layer over the a metal layer by anodisation). Therefore the subject-matter of claim 20 is not inventive in the sense of Art. 33(3) PCT.

4 DEPENDENT CLAIMS 2-4, 7, 14-17, 19, 21, 22

The subject-matter of dependent claims 2-4, 7, 14-17, 19, is also known from D1 (see D1, page 6, line 1-page 9, line 2; page 12, line 1-page 21, line 15; fig.1-4) or D2 (see D2, col. 6, line 51-col. 11, line 6; fig. 1-6,13,14) therefore the above dependent claims do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

5 DEPENDENT CLAIMS 5, 6, 8-13, 18

The combination of the features of dependent claims 5, 6, 8-13, 18 are neither known from, nor rendered obvious by, the available prior art, Art. 33(2)(3) PCT.